

An Ecological and Historical Perspective on Agricultural Development in Southeast Asia

Yujiro Hayami

How location, natural
resources, and different
policies toward the elite's
preemption of unused land
shaped the historical
development of different
agrarian structures across
Southeast Asia, conditioning
agricultural growth
performance until today



Summary findings

According to Myint's "vent-for-surplus" theory, development of the economies of Indonesia, the Philippines, and Thailand from the nineteenth century on took natural advantage of large tracts of unused "empty land" with low population density and abundant natural resources of the type typically found in Southeast Asia and Africa at the outset of Western colonization. When these economies were integrated into international trade, hitherto unused natural resources (primary commodities the indigenous people had not valued) became the source of economic development, commanding market value because of high import demand in Western economies.

The major delta of Chao Phraya River was the resource base of vent-for-surplus development with rice in Thailand; tropical rain forests filled that role in Indonesia and the Philippines with respect to the production of tropical cash crops. This basic difference underlay differences in distribution of farm size: the unimodal distribution of peasants or family farms in Thailand and the coexistence of peasants and large estate farms or plantations specializing in tropical export crops in Indonesia and the Philippines.

Differences in agrarian development were also shaped by different policies toward the elite's preemption of

unused land. Under Spanish colonialism, the elite preempted unused land in the Philippines wholesale, bifurcating land distribution between noncultivating landlords and sharecroppers in lowland rice areas, and between plantation owners and wage laborers in upland areas. In Indonesia, the Dutch government granted long-term leases for uncultivated public land to foreign planters, but prevented alienation of cultivated land from native peasants, to avoid social instability.

In Thailand, concessions were granted for private canal building, but the independent kingdom preserved the tradition of giving land to anyone who could open and cultivate it. Relatively homogeneous land-owning peasants dominated Thailand's rural sector.

As frontiers for new cultivation closed, the plantation system's initial advantage (large-scale development of land and infrastructure) began to be outweighed by its need to monitor hired labor. The peasant system, based on family labor needing no supervision, allowed Thailand's share of the world market in tropical cash crops to grow, as Indonesia and the Philippines lost their traditional comparative advantage. Moreover, land reform in the Philippines made land markets inactive, with resulting distortions in resource allocation and serious underinvestment in agriculture.

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Yujiro Hayami**

Aoyama-Gakuin University, SIPEB, Tokyo 150-8366

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** E-mail: hayami@sipeb.aoyama.ac.jp

An Ecological and Historical Perspective on Rural Sector Development in Southeast Asia

1. Introduction

Since the outbreak of the financial crisis in Thailand in July 1997, optimism has given way to pessimism on the development prospect of Southeast Asian economies. Yet, the fact remains that several economies in this region achieved extraordinarily high growth rates in about four decades prior to the crisis. It is generally agreed upon that their high development performance was supported by the success of agricultural modernization, popularly called the “Green Revolution.” It has recently become evident, however, that the potential of Green-Revolution technology to increase food output has been exhausting with the result of an emergence of a serious rice shortage in Indonesia, for example, at the very moment of the recent economic crisis (Pingali, Hossain and Gerpacio 1997). For the past high-performing economies in Southeast Asia to return to the track of sustained growth, it is necessary to design policies to revitalize agriculture based on the positive analysis of its past success and failure. Such a policy-oriented analysis will produce useful lessons to other developing regions. To be useful, however, the analysis on current developments must be based on the full grasp of environmental differences across major ecological zones within Southeast Asia as well as unique historical paths of Southeast Asian economies since their integration with the Western world. This paper aims to outline such an ecological and historical perspective.

In my perspective Southeast Asia can be classified into two major ecological zones: (a) the continental part including Thailand, Vietnam and Myanmar and (b) the insular and peninsular part (henceforth abbreviated as “the insular part”) including Indonesia, Malaysia and the Philippines. The former was characterized, among others, by major river deltas and the latter by tropical rain forests. Before the 1860s when new transportation technology integrated this region with the rapidly industrializing West, people in Southeast Asia lived on wet rice production in small valleys or shifting cultivation in upland forests. Much of major deltas and thick rain forests were then unused for agricultural production. When this region was faced

with growing demands from the West for tropical products, these unused land became the basis of “ vent-for -surplus “ growth, with deltas converted into paddyfields for commercial rice production and rain forests converted to plantations for export cash crops.

Corresponding to different natures of production by crop, deltas continued to be dominated by peasants or small family farms, while insular /peninsular areas were bifurcated between peasants cultivating rice in small valleys and coastal plains on the one hand and large plantations based on hired labor on the other. The different agrarian organizations were rooted significantly in different ecological conditions. Equally significant were differences in land policy across different political regimes. For example, the distribution of land ownership became far more skewed in the Philippines under Spanish colonialism than in Indonesia under Dutch colonialism, despite their both belonging to the insular part. Such differences in the agrarian structure, which were formed along different historical paths under different ecological conditions have had far-reaching influences on the performances of agricultural development across Southeast Asia. This is the aspect that I intend to focus on in this paper. While recognizing several important variables other than agrarian structure, including government policies, in determining agricultural development performance, the possibility should not be neglected that the present policy choice may be significantly influenced by the historical path in the formation of agrarian structure.

Following this introduction, Section 2 outlines the characteristics of resource endowments, agrarian structures, growths in aggregate agricultural output and changes in the shares of major export commodities in world markets in Indonesia, the Philippines and Thailand, which shall be interpreted in terms of the ecological and historical perspective to be developed later. Section 3 reviews the process of vent-for-surplus development in Southeast Asia in the late nineteenth to the early twentieth century. The critical roles of major river deltas in the continental part of Southeast Asia and tropical rain forests in the insular part are emphasized as the resource base of this development, and the resultant trade pattern is identified. Section 4 investigates the evolution of different agrarian structures in the three economies in the vent-for-surplus development process under different ecological conditions and political regimes. It is emphasized that the preemption of uncultivated but cultivable land by the power elite was the major force to have resulted in skewed land distributions. Section 5 tries to explain

differential agricultural growth performances across Indonesia, the Philippines and Thailand in terms of the different agrarian structures. Finally, Section 6 summarizes the findings and identifies research agenda for the future.

2. Recent Developments

Before advancing a historical perspective it should be useful to develop an overview of the characteristics of resource endowments, agrarian structures and agricultural production performances in the three economies under comparison in recent years.

Table 1 compares the endowments of land for agricultural production relative to population and labor force. Land is measured here by area of “cropland” in my term, which is the sum of areas of arable land (area used for annual cropping) and land under permanent crop in the statistics of the Food and Agriculture Organization (FAO). Arable land is classified into “lowland paddyfield” and “upland annual crop land”. Data for these sub-categories of arable land have not been enumerated in the FAO statistics that are mainly based on the census of farm households.. It was only recently that the data of lowland paddyfield area based mainly on aerial photography began to be available in the official reports of national statistical agencies for some specific years, which are used for calculations in Table 1.¹ The areas of upland annual crop land are measured as differences between arable land and lowland paddyfield areas.

Data in this table show that in per-capita terms cropland area in Thailand is more than twice as large than in Indonesia and the Philippines but only marginally larger in per-farm worker terms in 1996 . Cropland areas increased from 1965 to 1996 by about 20 percent in Indonesia, 40 percent in the Philippines and 60 percent in Thailand. In all the three economies, however, the rates of expansion in cropland area were lower than the rates of growth in population and

¹ Huke and Huke (1997) estimate paddyfield areas in Indonesia, the Philippines and Thailand in the mid 1990s as being 9,441,000, 3,456,000 and 9,806,000 hectares , respectively, though they do not specify to which years these data pertain. The substitution of Hukes’ estimates for the data used in Table 1 does not change the conclusion of this paper.

agricultural labor force. The cropland endowment relative to population decreased from 1965 to 1996 by 15 percent in Thailand, whereas the rates of decrease were higher than 30 percent in Indonesia and the Philippines. The land endowment relative to agricultural labor force remained about the same in Thailand, while it decreased in Indonesia by about 30 percent and about 10 percent in the Philippines. These data suggest that Thailand has been endowed with relatively favorable conditions for expanding land cultivation frontiers until recently, as compared with Indonesia and the Philippines.

In the context of this paper the important characteristic that distinguishes Thailand from Indonesia and the Philippines is the high share of paddyfield area in total cropland, being larger than 50 percent in Thailand as compared with only about 30 percent in Indonesia and the Philippines in 1996. On the other hand, Indonesia and the Philippines are characterized by the high shares of area under permanent crops amounting to more than 40 percent in contrast to less than 20 percent in Thailand. Needless to say, permanent crops in these economies consist mainly of tropical trees for cash crop production, such as coffee, coconuts and rubber. Although the earlier data are not available of lowland paddyfield area, the basic characteristic that the share of tree crop land was much higher in Indonesia and the Philippines than in Thailand remained the same today as 30 years ago. These data reflect the ecological difference between the continental part of Southeast Asia as represented by Thailand and the insular part as represented by Indonesia and the Philippines. The continental part had major river deltas almost exclusively used for wet rice production and the insular part was originally covered by tropical rain forests which could profitably be converted into the plantations of tropical cash crops.

The different types of agricultural production corresponding to different environmental conditions gave rise to different agrarian structures in the continental part as compared with the insular part. Common to cereal-producing areas in the world, Thai agriculture traditionally dependent on rice has been characterized by the dominance of peasants or small family farms as the organization of production. On the other hand, a significant portion of tropical cash crop production has been carried out by plantations or large estate farms dependent on hired labor, though many peasants have also grown cash crops. Table 2 compares the distribution of farm sizes and the incidence of tenancy across Indonesia, the Philippines and Thailand for the

period before the influence of Philippine land reform became significant.

In all the three economies small farms operating below 5 hectares were the majority comprising of 70 to nearly 100 percent of farms and cultivating from 40 to 70 percent of farmland. Large farms above 50 hectares, which were considered to be agribusiness plantations, are negligible in number, but land under the operation of those estate farms was 14 percent in Indonesia and the Philippines, while that of Thailand was less than 1 percent. As such, the agricultural sector in the insular part is bifurcated between peasants subsisting on small parcels of land and large plantations with hired labor under the hierarchy of management, while that of the continental part is characterized by the uni-modal distribution of self-employed family farms. These plantations were privately owned and managed in the case of the Philippines, whereas those of Indonesia were mostly state enterprises expropriated from Dutch planters after independence.

The incidence of tenancy also varied widely, distinctively higher in the Philippines than in the other two, especially in terms of percentage of area under pure tenancy. What ecological factors and historical processes would have resulted in such different agrarian structures in Southeast Asia shall be the focus of this study.

Agricultural growth performances from 1965 to 1995 are compared in Table 3. In terms of total agricultural output, the rates of growth in Indonesia and Thailand were about the same, but in both per-capita and per-farm-worker terms, Indonesia's growth rates were somewhat higher. In those three measures the growth rates were the lowest in the Philippines. In terms of output per hectare of cropland, Thailand's growth was much slower than Indonesia and comparable to the Philippines. The slow growth of land productivity in Thailand resulted partly because of a major expansion of cultivation frontier in the Northeast that is characterized by poor soil and unstable rain fall, and partly because of the relatively low rate in the diffusion of modern high-yielding rice varieties.²

² Short-statured modern varieties were difficult to grow in flood-prone areas in the Chao Phraya Delta as well as in drought-prone areas in the North East. Also, farmers did not adopt modern varieties much because of the low valuation of these products in the export market for Thailand.

In terms of both environmental conditions and relative resource endowments, traditional comparative advantage in agricultural production of Thailand lay in rice, and that of Indonesia and Philippines lay in tropical cash crops. It is, therefore, no surprise to find in Table 4 that Thailand was a major rice exporter (the world's largest) with its world market share continuing to rise from 1961-65 to 1991-95, while Indonesia and the Philippines remained net importers though their import margins were significantly reduced owing to the success of the "Green Revolution." This success was especially great in Indonesia, accounting mainly for the high rate of growth in aggregate agricultural output despite the relatively slow growth of cropland area in this country (Tables 1 and 3).

Surprising is the rise of Thailand as the exporter of several tropical cash crops associated with the decline of Indonesia and, more conspicuously, that of the Philippines. Sugar represents a typical example. Thailand was a net importer of sugar before the Second World War and was barely self-sufficient in the early 1960s. Nevertheless, Thailand rose to the third largest exporter in the world next to Brazil and Australia in the 1990s. In contrast, Indonesia and the Philippines, two traditional exporters of sugar in Asia almost completely lost its significance in the international market. Thailand exceeded Indonesia in the export of rubber and the Philippines in the export of pineapple products by the 1990s. Indonesia was able to achieve a major increase in the world market share of coffee and also to maintain high shares of palm oil and rubber. The Philippines, on the other hand, was the loser in world competition in most tropical cash crops in which traditional comparative advantage is supposed to lie, especially after the 1970s. The strengthened competitive position of Thai agriculture and the dwindled position of Philippine agriculture are unmistakable from the data.

As is well known, Indonesia and Thailand belonged to "high-performing economies" in the East Asian economic miracle throughout the four decades ending in the outbreak of the financial crisis in 1997 (World Bank 1993), while Philippine economy staggered especially in the "lost decade" of the 1980s. As the result, per-capita GNP in Thailand, which was about the same as that of Philippines in the 1970s, became twice as large by the early 1990s. During the same period Indonesia's GNP per capita increased from only about one half to about the same level as the Philippines'. It should be reasonable to expect that the different performances of agriculture among the three countries, as summarized in this section, should be one of major

factors underlying different growth rate of their economies. The following sections aim to identify ecological and historical determinants of agrarian structures, each unique in Indonesia, the Philippines and Thailand, and discuss on how the different agrarian structures might have been related to different agricultural and economic growth performances.

3. The Basis of Vent-for-Surplus Development

As advanced in the introduction, one basic framework of my perspective is the classification of Southeast Asia into the continental part and the insular part (including the Malay Peninsular), characterizing the former by major river deltas and the latter by tropical rain forests. Such characterization is a gross over-simplification, disregarding wide ecological variations within each region.³ In Thailand for example, the major delta of Chao Phraya River encompasses only a part of the Central Plain, one of four regions in Thailand. The North is characterized by small river valleys amidst hills and mountains rising toward the Burmese-Chinese border, where irrigated rice farming can easily be practiced by tapping small streams, on which early Thai dynasties were build. The Northeast bordering with Laos is characterized by undulated plateau with sporadic rainfall and poor soil, which had remained as the last frontier until Lao migrants settled recently by means of risky rainfed farming. The South toward the border of Malaysia has an environment similar to the insular part originally covered by rain forest.

Ecological variations within the insular part are equally large. Especially pronounced is the difference between Java (and Bali) and Outer Islands such as Kalimantan and Sumatra in Indonesia. While much of the latter area is typically covered by tropical rain forest, the environment of Java is categorically different, as it is characterized by volcanic slopes with fertile soil and steady water supply, which makes much of this area uniquely suited for irrigated rice farming. The environment of the Philippines is largely similar to that of Outer Islands in Indonesia but mixed with volcanic terrain similar to that of Java.

³ Descriptions on ecological and environmental conditions in Southeast Asia in this paper are mainly based on Takaya (1985).

Despite the large variations within each region, I would dare to characterize the environment of the continental part by major river delta and that of the insular part by tropical rain forest, because they were the basis of economic development in Southeast Asia from the late nineteenth to the early twentieth century. The so-called “vent-for-surplus theory” by Myint(1965; 1971, ch.5) focused on the process of development of “empty land” with low population density, large tracts of unused land and abundant natural resources, typically found in Southeast Asia and Africa at the outset of Western colonization . When these economies were integrated into international trade, unused natural resources (hitherto having had no value to indigenous people) began to command market value since they were found useful to produce primary commodities of high export demand to Western economies. In this way, hitherto-unused resources became the source of economic development. It was the deltas of major rivers, such as Chao Phraya in Thailand, Irrawaddy in Myanmar and Mekong in Vietnam that became the basis of vent-for-surplus development in the continental part of Southeast Asia, while it was the land under rain forest that provided the development basis for the insular part.

Major river deltas in the continental part were very flat and low relative to the sea level, so that their surface is almost completely submerged by flood in rainy season while it dries up in dry season with no reservoir to store water. As such, flood plains in the major deltas had defied human settlement until the mid-nineteenth century, literally remaining empty land. It was through the major civil engineering work to control flooding water that the deltas were transformed into habitable and agriculturally productive land. In Thailand the water control work took the form of developing the network of canals connected with Chao Phraya River. The canals guide flooding water more evenly over wider areas for rice production. Also, canal banks provide flood-proof spaces on which farmers can settle.

Canal construction in the Chao Phraya delta was initiated by the government of enlightened King Mongkut (Rama IV of the Chakri dynasty) shortly after the signing of the so-called Bowring Treaty in 1855 that opened the kingdom to trade with the West. Soon, rapid increases in foreign demand for Thai rice, which significantly raised both the price of rice and the value of rice land, induced mobilization of private investment. As a major builder of private canals, the Siam Canals Land and Irrigation Company was established by

a group of influential courtiers and wealthy Chinese traders. The company secured concession in 1889 to dig canals in a vast tract of swampy land in the northeast of Bangkok, under the clause that the company is allowed to hold ownership over reclaimed land along the canals. Its operation was managed by the Chinese business elite and construction work was heavily based on Chinese migrant laborers hired on wage, unlike corvee labor used in King's prior projects. However, farmers settled in reclaimed land as tenants were Thai, who migrated from other regions⁴. There is little doubt that opening of the Chao Phraya Delta for rice production was the very basis of vent-for-surplus growth of Thai economy toward specialization in rice production in the late nineteenth century. Although comparable data are not available for earlier years, the area planted in rice in the Central Plain was as large as 6.8 million rai (one rai equals 0.16 hectare) or 85 percent of total rice area in the kingdom in the 1905-9 period, which was larger than the national total of 5.8 million rai in 1850 (Ingram 1971, p.44). Opening of the Irrawaddy Delta and the Mekong Delta in the development of Burmese and Vietnamese economies during the comparable period was no less important than that of the Chao Phraya Delta.

A comparable role in vent-for-surplus development in the insular part of Southeast Asia was played by tropical rain forest. Since long before the mid nineteenth century, rain forest had long been the source of supply of valuable products for trade, such as cinnamon, clove, bird nests, deer horn and hides. However, the high incidence of malaria and other tropical diseases defied human settlement inside thick tropical forest in low elevation. Typically, native people lived on sea coasts and occasionally entered the forests for collection and extraction of natural products for sale to foreign traders or their agents who sailed to their coasts. It was in the late nineteenth century that Western capital and entrepreneurship began to convert the forests into plantations of tropical export crops, heavily relying on migrant labor from China. Before this period there were attempts by Western colonial powers to collect tropical products from the natives by tax and other coercive means, but it was largely after the mid nineteenth century

⁴ While the corvee obligation was replaced by tax in kind or money, slavery was also phased out gradually over the reigns of Kings Mongkut and Chulalongkorn, ending in abolishment in 1905 (Ingram 1971, pp. 53-63 ; Feeny1982,

ch. 6). The elimination of slavery and the corvee should have been an important factor for allocating a greater share of Thai labor to rice cultivation.

that Western colonizers by themselves began to produce export crops by organizing plantations in Southeast Asia.

Concurrent exploitations of continental deltas and insular forests were the result of greater integration of Southeast Asia into world economy in the late nineteenth century. Much greater integration than before resulted from (a) establishment of the free trade regime under the hegemony of Britain and (b) revolution in ocean transportation. The free trade system was imposed on native economies by force, either directly by Britain in its colonies or indirectly by forcing liberalization on local sovereign and other colonial powers. By the Bowring Treaty, Thailand conceded to Britain not only extraterritoriality but also lost financial autonomy. Export and import duties were fixed at the flat rate of three percent ad valorem, and internal taxes such as exercise taxes, transportation tolls and even land taxes were not allowed to change by the will of the kingdom alone. Public finance was carefully monitored by advisors from Britain (Ingram 1955, ch.8). As such, the Kingdom of Siam for several decades after signing the Bowring Treaty was almost like Britain's protectorate. The free trade system, both internationally and internally, was imposed on the kingdom in a way similar to Britain's colonies such as Burma and Malay.

Furthermore, Britain pressed on other Western colonies to adopt the free trade system. For example, Spaniards' monopoly of re-export trade at Manila of Chinese goods to Mexico by galleon ships were broken by the British occupation of Manila in 1762-64 during the Seven Years' War, with the result of opening up Manila to other nations' shipment and commerce. Continued pressure of Britain underlay successive opening of other ports in the Philippines until the mid nineteenth century (Larkin 1972).

The reason behind Britain's strong drive for free trade was its high manufacturing production capacity established this country as "the Workshop of the World" after the Industrial Revolution. British industries sought markets for their products and sources of raw material supplies. Having established the modern factory system that could produce industrial products at lower costs than local cottage industries in the tropics, Britain found it advantageous to trade their manufactured commodities for tropical agricultural products and minerals for meeting import demands, compared with the forced collection of tropical

commodities through tax and other means, which was commonly practiced by earlier colonialism such as Spanish conquistadors in the Philippines and the Dutch East India Company in Indonesia. This approach was soon followed by other Western nations as they followed Britain in industrialization.

Corresponding to the expanded industrial production capacity, demands from the West for raw materials for processing, such as cotton, rubber and tin became very large. Moreover, as the level of income and wages rose, tropical delicacies such as pepper, coffee and tea hitherto limited to the consumption of high-income elite became commonly placed on the tables of ordinary working people. Altogether, demands in the West for primary products from the tropics became incomparably larger than before.

This tendency was further strengthened by major innovations in ocean transportation, consisting of the introduction of steamship and the opening of the Suez Canal in 1869. These two innovations were combined to reduce the transportation cost of commodities from Bangkok to major ports in Europe such as London below that from Bangkok to Thailand's old capital, Chiang Mai (Ingram 1971, p.115). Without such innovations it should have been impossible for the bulky commodity like rice produced in Southeast Asia to find market as far as in Europe (Furnival 1948, pp.50,84-85).

While the innovations in ocean transportation reduced the prices of commodities from Southeast Asia in the West, they also reduced the prices of Western commodities in Southeast Asia to a large extent. Thus, under the liberal trade regime in the late nineteenth century, industrial commodities flowed into Southeast Asia, out-competing local handicraft industries. De-industrialization became a common feature in Southeast Asia (Resnick 1970). Thailand, which used to be an exporter of cotton products before the 1850s, quickly turned to be a major importer (Ingram, 1971, ch.6). Correspondingly, indigenous labor shifted from manufacturing to primary production for export. This shift, together with migration of labor from China and India, provided the basis of exploiting unused natural resources, such as major river deltas and tropical rain forests, for vent-for-surplus development. An example to clearly illustrate the impact of opening to international trade on specialization in primary production can be seen in the development of sugar production in Negros, Philippines. Prior to the opening of nearby Iloilo City as an international port in 1855, Negros Island was sparsely populated and much of

its area was uncultivated. After then, this island was rapidly transformed into sugar plantations. Concurrently, local weaving industries surrounding Iloilo, which had hitherto made textiles a major export item from this region, were brought into havoc by the inflow of cheap British cloth (MaCoy 1982).

In the global trade system created in the late nineteenth to the early twentieth century the exchange was not simply between industrial commodities in the West and primary commodities in Southeast Asia. Rice produced in the continental part was originally brought to Europe as cheap food for industrial laborers (some re-exported to Latin America). Later, as plantations were developed in the insular part, demand for rice as the basic subsistence need for plantation laborers expanded at the speed that could not be met by local supply. Correspondingly, the share of rice exported from the continental to the insular part within Southeast Asia increased. Thus, the trade flows emerged in this period were triangular – rice produced from the continental part was brought to the insular part, and tropical cash crops produced in the insular part by laborers fed on the imported rice were exported to Europe in exchange for industrial products. In this triangular trade flow, comparative advantage dictated for regional specialization. For example, sugar industry, which appeared to be a promising industry for export in Thailand in the onset of trade opening, was soon destroyed by imports from Indonesia and Philippines (Ingram 1971, ch.5). In this way, vent-for-surplus development in Southeast Asia based on the exploitation of hitherto-unused land resources was reinforced by comparative advantage within the region.⁵

4. Evolution of Agrarian Systems

How this process of vent-for-surplus development would have influenced on the formation of agrarian structures in Indonesia, the Philippines and Thailand, as observed in Table 2, may be summarized as follow: (a) Thailand is characterized by the unimodal distribution of peasants or family farms with large estate farms or plantations being insignificant and the incidence of tenancy being relatively low, (b) Indonesia and the Philippines are characterized

⁵ Comparative advantage based on natural resource endowments was re-enforced by colonial policies on farm lands (which shall be discussed in Section 4) as well as public investments in physical and institutional infrastructure. For example, the increased international competitiveness of sugar industry in Indonesia was supported by a strong sugarcane research program organized by the Dutch colonial government (Evenson 1976).

by bifurcation between the peasant sector growing mainly subsistence crops and the plantation sector growing tropical cash crops, and (c) relative to the other two the incidence of tenancy is high in the Philippines. Characteristics of (b) and (c) are combined to imply that the share of landless population in the rural sector is the highest in the Philippines.

It is common to explain the persistence of the peasant mode in contrast to the emergence of the plantation system in terms of different technological requirements for production between subsistence food crops and export cash crops. However, in my perspective the bifurcated farm-size distribution and the problem of landlessness in Southeast Asia (as well as in other parts in the world) stemmed essentially from “preemption of land” by colonial and domestic elite rather than technological factors for agricultural production.

*4.1 Conditions of the plantation system*⁶

In order to articulate this perspective it is necessary first to identify the factors underlying the emergence of plantations.

A conventional explanation for the establishment of a plantation system is the scale economies inherent in the production of tropical export crops (Baldwin 1956). However, the crops subject to sufficiently strong scale economies at the farm level to make the use of the plantation organization necessary are few (Pim 1946; Wickizer 1951, 1960; Lim 1968; Hayami, Quisumbing, and Adriano 1990, chs. 5 and 6⁷). In fact, one can find an example of every so-called plantation crop being grown successfully by peasants somewhere in the world.

Significant increasing returns emerge only at the levels of processing and marketing activities. The vertical integration of a large farm unit with a large-scale central processing and/or marketing system is called for because of the need to supply farm-produced raw materials in a timely schedule. A typical example is fermented “black tea.” The manufacturing

⁶ This section draws on Hayami (1994; 1996).

⁷ Absence of scale economies in agriculture is also attested by the estimation of aggregate production functions based on inter-country cross-section data (Hayami and Ruttan 1985, ch.5).

of black tea at a standardized quality for export requires a modern machine plant into which fresh leaves must be fed within a few hours after plucking (Wickizer 1951; 1960). The need for close coordination between farm production and processing underlies the traditional use of the plantation system for black tea manufacture. Unfermented “green tea,” in contrast, remains predominantly the product of peasants in China and Japan.⁸

In the case of bananas for export, harvested fruits must be packed, sent to the wharf, and loaded on a refrigerated boat within a day. A boatful of bananas that can meet the quality standards of foreign buyers must be collected within a few days. Therefore, the whole production process from planting to harvesting must be precisely controlled so as to meet the shipment schedule. Although the plantation system has a decisive advantage for this exported product, bananas for domestic consumption are usually produced by peasants.

On the other hand, for the crops for which centralized processing and marketing are not necessary, plantations have no significant advantage over peasants. Typical examples are cocoa and coconuts. The fermentation of cocoa and the drying and smoking of coconuts to make copra can be handled in small lots with no large capital requirement beyond small indigenous tools and facilities. These crops are grown predominantly by peasants.

Sugar is frequently cited as a classic case of scale economies stemming from the need of coordination between farm production and large-scale central processing (Binswanger and Rozenweig 1986). Efficient operation of a centrifugal sugar mill requires the steady supply of a large amount of cane over time. Coordination of production from planting to harvesting with processing is required. This coordination, however, need not be as stringent as it is for tea and bananas. The rate of sugar extraction decreases as the processing of cane is delayed,

⁸ Even for the manufacture of black tea is not imperative to use the plantation system as evident from the case of Taiwan where smallholders have been used to produce both black and green tea with small-scale equipment. The large fermentation plant has been used by plantations as a device of enforcing work schedule and standardizing product quality for the export market. In fact, farm production by smallholders based on the system of “contract farming” (which shall be explained in Section 5.2) have recently been developing in Kenya (Lamb and Muller 1982).

but this loss is in no way comparable to the devastating damage that delayed processing has on the quality of tea and bananas for export. Sugar cane can be hauled from relatively long distances and stored for several days. Therefore, the need for vertical integration is not as large, and the necessary coordination can be achieved through contracts of a sugar mill with cane growers on the time and the quota of cane delivery. In fact, an efficient sugar industry with smallholders has developed in Australia, Taiwan and more recently in Thailand.

Another explanation for the use of the plantation system is the advantage of large estate farms in accessing capital. Because of this, it has been argued that plantations have an advantage with regard to tree crops characterized by long gestation periods from planting to maturity (Binswanger and Rosenzweig 1986). However, the opportunity costs of labor and capital applied to formation of the tree capital are not necessarily high for peasants. Typically, they plant the trees in hitherto unused land. If such land is located near their residence, they open new land for planting by means of family labor at low opportunity cost during the idle season for the production of food crops on farm land already in use. When they migrate to frontier areas, a typical process is to slash and burn jungles and plant subsistence crops such as maize, potatoes and upland rice, together with tree seedlings. Such complex inter-cropping is difficult to manage with hired labor in the plantation system, because of inherent difficulty in monitoring the work of hired wage laborers over spatially dispersed and ecologically variable farm operations (Brewster 1950; Binswanger and Rosenzweig 1986; Hayami and Otsuka 1993).

Therefore, even in the export boom of tropical cash crops under colonialism from the nineteenth century to the early twentieth century, the plantation system failed to make inroads in regions where indigenous population had established family farms (Lewis 1970, pp. 13-45). Western traders found it more profitable to purchase tropical agricultural commodities from peasant producers in exchange for imported manufactured commodities than to produce the tropical crops themselves by means of the plantation system.

The establishment of plantation in less-developed economies became a necessity when the demand for tropical products by the industrialized nations continued to rise, while the regions physically suited for the production of these products had no significant peasant population

that could produce and trade their commodities. Opening frontier land for the production of new crops entailed high capital outlays. Virgin land had to be cleared and developed, and physical infrastructure, such as roads, irrigation systems, bridges, and docking facilities, had to be constructed. Capital, in the form of machinery and equipment, had to be imported and redesigned to adapt to local situations. Laborers were not only imported from the more populous regions but also had to be trained in the production of these crops.

The establishment of plantations thus requires huge initial capital investment. For the investors to internalize gains from investment in infrastructure, the farm size inevitably must be large. Viewed from this perspective, it follows that the plantation system evolved not because it was generally a more efficient mode of productive organization than the peasant mode, but because it was the most effective type of agricultural organization for extracting the economic benefit accruing from the exploitation of sparsely populated virgin areas, typically in the process of vent-for-surplus development. From this perspective, it is easy to understand why the same crop is grown mainly by peasants in one place and mainly by plantations in another. For example, for sugar cane production the peasant mode is more common in old settled areas of Luzon, and the plantation system predominates in the newly opened Negros, both in the Philippines (Hayami, Quisumbing, and Adriano, 1990, ch.5). Usually the share of peasants in the production of export cash crops rises as the initial land-opening stage is over and infrastructure is decently established with increased population density (Booth 1988, ch.6).

While recognizing the economic advantage of the plantation system in the vent-for-surplus stage, plantations could not have been established unless concessions were granted to hold large tracts of virgin land for their exclusive use. Typically, such concessions were given by colonial governments to Western planters. For example, the Dutch colonial government had traditionally tried to prevent alienation of farmland from indigenous peasants by regulating against land purchase by foreigners including ethnic Chinese. However, in the late nineteenth century when demands for tropical cash crops rose sharply, by the Agricultural Land Law of 1870 the government granted Dutch planters long-term contracts to lease in wild land, which were *de jure* owned by the government (though *de facto* used by native tribes). While this new institutional arrangement should have accelerated the development of “empty land” for

cash crop production, it served as an instrument to preempt land for the elite, closing smallholders' land access. Similar public land-leasing arrangements were also practiced under the American colonial administration in frontier land of the Philippines, especially in Mindanao, which became the basis of large plantations under the management of multinational corporations (Hayami, Quisumbing and Adriano 1990, ch.6).

4.2 Land preemption and tenancy

The incidence of land tenancy is also closely related with the preemption of land. Of course, land tenancy relationship can emerge as a practice among peasants in the absence of preemption. If a rural community is not disturbed by external forces, land tenure institutions would evolve gradually from communal to private ownership. Corresponding to the growing relative scarcity of land under mounting population pressure, it becomes necessary to intensify the utilization of land, typically from shifting cultivation with long furrow to that with short furrow, to annual cropping and further to multiple cropping per year involving irrigation a la Boserup (1965). The process of agricultural intensification required major investment for improving land infrastructure, from removing stones and roots out of newly opened land to land leveling and terracing, and further to irrigation and drainage. In order to secure incentive for such investment it becomes necessary to give land users the right to use their land exclusively. Thus, land tenure institutions normally evolve from communal ownership to private ownership, involving various steps from periodical re-allotment of communal land among community members, to life-long usufruct rights, to usufruct rights inheritable to heirs, and further to private property rights amenable for market transactions.

Land tenancy arrangements gradually develop as an institution to increase production efficiency by improving combinations between land and labor (including entrepreneurship) as individual land tenure becomes longer and more exclusive. When a farmer finds his family labor short for cultivation of a land parcel on which a long-term usufruct is established (for sickness or some other reasons), he may rent out a part of it to someone whose land endowment is short relative to labor endowment. It is a Pareto improvement if the latter pays to the former a rent equivalent to the marginal productivity of land. At the same time, land tenancy associated with private property rights on land can work as an institution to increase

inequality in income distribution and social hierarchy within community. A farmer endowed with superior muscular power or entrepreneurship may rent more land and increase income and may eventually buy the land. As he eventually accumulates more land than his family labor can efficiently cultivate, he may rent out a part of his land to someone who has become landless for whatever reason. Increased income from rent revenue added to farm income may motivate him to purchase more land for renting. This process should progress faster as the relative scarcity of land rises under increased population pressure.

Such autonomous evolution of land property rights and tenancy relationships, however, does not usually result in large-scale absentee landlordism as observed in several developing economies. Rather it tends to create stratification of peasantry along a continuous spectrum between landlord-cum-owner and owner-cum-tenant farmers. Although land tenancy is very commonly practiced, a majority of farmland continues to be under owner cultivation, and both non-cultivating landlords and pure tenants are the minority. Such an agrarian structure is typically found in the peasant sector in Indonesia. Unlike other colonial powers, the Dutch did not try to impose Western institutions such as private property rights in land. Rather it preserved or even strengthened traditional community institutions and organizations. The Agrarian Law of 1870 granted long-term lease of wild public land to foreign planters, as explained before, but did not allow them to purchase or rent cultivated land from native peasants individually. Instead, sugar planters were allowed to lease in rice land through contracts with the heads of villages normally extending for less than 20 years. The lessee was allowed to occupy only one third of the village land, which had to be rotated over three crop seasons. This rotation was designed to prevent planters from gaining a permanent hold on village land. Periodic reallocation of village land under the direction of village headmen strengthened traditional tendencies toward communal landholding (Pelzer 1945, p.146).

A sharp contrast is found in the Philippines. The Spaniards introduced from the time of conquest the notion of legal title to land (McLennan 1969). They applied to the Philippines the same principle applied to other new territories—that all land except those officially proved to be private or communal possessions belonged to the Spanish crown. The crown's property rights were established over vast areas of uncultivated land including areas used as commons by native people. Much of the royal domain was granted to conquistadors and monastic orders

such as Augustinian and Franciscan friars. This institutional development in the early Spanish era represented a wholesale preemption of usable land closing access by native people. Later, as the population increased and foreign demand for Philippine products increased through trade liberalization, large landholdings created from earlier royal grants became the basis of plantations in the case of upland and rice haciendas manned by tenants in the case of lowland. However, native peasants had no access to land for them to open and establish ownership. For example, when the inner part of Central Luzon that had been covered by jungle and used only for cattle ranching was finally converted into large rice haciendas in the late nineteenth century, many peasants migrated from the north with the belief that they had settled in no man's land. After opening the jungle, they were visited by the agents of landowners and notified to pay rents as tenants in haciendas (Hester and Mabun 1924).

Pervasive landlordism in the Philippines also rooted in relatively free land transactions under the Spanish regime. Chinese and Chinese mestizos, who engaged in internal trade along littorals where native peasants held traditional land rights, acquired land through money lending using land as collateral. A common arrangement is that the borrower continued to cultivate his land as a sharecropper of his creditor during the loan period and that, if unable to pay the loan in the end of the loan period, the land title shifted to the creditor while the borrower usually continued sharecropping (McLennan 1969). The scale of landholding accumulated in this commercial process in the coastal area was typically much smaller than that of hacienderos in the inner part of Central Luzon (Hayami and Kikuchi 1981, ch. 4). Thus, before the Marcos land reform in the 1970s, rice area in the Philippines was predominantly cultivated by share tenants, typically owning no land of their own. The pervasive landlordism in the rice sector and plantations in the cash crop sector that characterized the traditional agrarian structure in the Philippines were both rooted in the preemption of land in the Spanish period.

In Thailand also, preemption occurred in the vent-for-surplus stage through granting of land concessions to private canal builders in Chao Phraya Delta. As a result, the incidence of tenancy is significant in the Central Plain, especially in the Rangsit area northeast of

Bangkok, where canals were intensively dug by the private company⁹. Yet, taking Thailand as a whole, tenancy is of minor importance compared with Indonesia and the Philippines, partly because of relatively abundant land endowment and more importantly because of government policy. In this country it was the ancient custom to give every man the right to take as much land from the state as he and his family could cultivate, which was considered normally to be 25 rai (equivalent to 4 hectares). This institution was maintained even after opening trade with the West. The Consolidated Land Act of 1908 did not specify an exact area of land, but gave people the right to take as much land as they could profitably cultivate. In practice these areas ranged between 20 and 50rai. The Land Act of 1936 specified 50 rai as the maximum that one could take. By these laws access of ordinary Thai to land was kept wide open¹⁰. The situation was diametrically different from that of the Philippines. Both of these Thai laws incorporated another old custom that the cultivator could receive title to the land only after he cultivated it for three years. This clause together with the land taxation applied not only to cultivated but

⁹ It is important to recognize that the preemption of potential rice land in Thailand as well as in the Philippines resulted in the emergence of large-scale landlordism but not in the formation of plantations based on hired labor. Large holdings of landlords were usually subdivided into small parcels for rice cultivation by the family labor of landless peasants under tenancy contracts. The owners of large tracts of rice land who established titles through land preemption, such as obtaining concessions for canal digging in the Chao Phraya delta, preferred tenancy to plantation operations. The reason may partly be explained by the difficulty of standardizing tasks of rice production and, hence, of monitoring the efforts of workers. An equally or perhaps more important reason is that paddy is storable and hence the need of close coordination between farm production and processing/marketing is not necessary unlike the cases of black tea and banana for export, as explained before. Although rice milling and marketing for export involved significant scale economies, the operators of this business could secure adequate supply of paddy through ordinary market transactions. As the result, they were dispensed with the efforts to vertically integrate farm production with processing and marketing by means of the plantation system or the contract farming system. Therefore, it may not be unreasonable to postulate the counter-factual hypothesis that, if the nature of rice milling technology were such as to require close coordination with paddy production, large rice plantations would have been established in the Rangsit area in the process of rent-for-surplus development. Outside the newly opened delta area, the practice of tenancy is fairly common in the old-settled North region. The agrarian structure in the North of Thailand, which did not experience preemption, is similar to that of the peasant sector in Indonesia characterized by a continuous spectrum from landlord-cum-owner to owner-cum-tenant farmers.

¹⁰ All forest lands were *de jure* state-owned but were *de facto* open-access, except valuable teak forests which were an important source of the Kingdom's revenue (Feeny 1999, p.431)

also uncultivated holdings discouraged holding of land for speculation (Ingram 1971, p.79).

It appears to be rather obvious that the basic factor underlying the major difference in land policy between the Philippines and Thailand was the difference in the culture or the value system between Spanish colonial rulers and the rulers of the independent kingdom. The reason why the Dutch colonial rulers tried to preserve traditional village institutions thereby avoiding alienation of land from peasants in Indonesia might be their motivation to maintain social stability for the sake of extracting tropical agricultural products from this colony at the minimum administrative cost, as argued by Furnival (1944; 1948).

5. Agrarian Structure and Agricultural Growth Performance

I now try to deliberate if the different agrarian structures that emerged along different historical paths under different ecological conditions explain, at least in part, different agricultural growth performances across Indonesia, the Philippines and Thailand in recent several decades, as outlined in Section 2. The following two questions shall be focused: First, why did Indonesia and the Philippines, which had strong comparative advantage in tropical cash crops such as sugar before the Second World War, lose ground to Thailand in world market competition in recent years (Table 4) ? Second, why was the agricultural output growth of the Philippines so slow relative to Indonesia and Thailand (Table 3)?

5.1 Losing ground of plantations

The previous section has argued that the efficiency of the plantation relative to the peasant system is high in the initial opening-up process of land-abundant and labor-scarce economies. However, several negative aspects of plantations become significant as tropical economies shift from the land-abundant to the land-scarce stage after the completion of the opening-up process.

First, the plantation system tends to substitute capital for labor, because of the inherent difficulty in supervising wage laborers in spatially dispersed and ecologically diverse farm operations as well as their relatively easy access to both private credit market and

government's concessional loans. This substitution is socially inefficient in many developing economies which are characterized by the abundant endowment of labor relative to capital.

Second, agricultural land tends to be cultivated less intensively in the plantation system that employs mainly wage labor and usually practices monoculture. Complicated inter-cropping and crop-livestock combination are more difficult to manage in the command system, implying that both labor input and income per hectare were lower in the plantations.¹¹ This is a source of inefficiency in the plantation system where land becomes scarce relative to labor under the pressure of population growth. In contrast, small-sized family farms tend to cultivate land more intensively.

Third, plantations usually specialize in a single crop. This bias for the production of a monocrop reduces the flexibility of these productive organizations to respond to changing demand by shifting to the production of other crops. Moreover, continual cropping of a single crop tends to result in soil degradation and an increase in pest incidence. Counter application of fertilizer and chemicals causes serious stress on environment and human health, and incur high costs.

Fourth, the specialization of plantation workers in specific tasks inhibits the development of their managerial and entrepreneurial capacity (Baldwin 1956; Myint 1956; Beckford 1972).

Fifth, the plantation system is a source of class conflict between laborers and managers/capitalists. The presence of a plantation enclave in rural economies where the peasant mode of production predominates has often strained relationships in rural communities. In terms of the criterion of social stability, therefore, the plantation system is no match for the system of relatively homogeneous small producers owning small assets, however small they might be.

¹¹ Official statistics often record that yields per hectare of cash crops such as coffee and rubber are higher in plantations than in small holders. However, these statistics do not take into account various products intercropped with principal cash crops by small holders, whereas monoculture is the common practice of plantations.

Although Southeast Asia had traditionally been endowed with relatively abundant land resources ready for exploitation, frontiers for new land opening were progressively closed under the explosive population growth that characterized developing economies after the Second World War. It seems reasonable to expect the advantage of the plantation system to have declined and that of the peasant system to have risen correspondingly. It is no wonder, therefore, to find that Thai agriculture which predominantly consisted of smallholders began to perform better than that of Indonesia and the Philippines characterized by the large plantation sectors.¹² Major increases in the exports of non-rice agricultural commodities such as rubber, kenaf and cassava tips from Thailand were totally based on smallholders' production. It is true that the expansion in the production of non-rice export crops in Thailand was, to a significant extent, supported by the existence of open land frontiers to enable relatively fast increases in area under cultivation (Table 1). The important point in the present context, however, is that the exploitation of cultivation frontiers was carried out by smallholders but not by plantations.

Relative increases in the efficiency of the peasant system was not limited to Thailand. The dramatic rise in the share of Indonesia in world coffee and cocoa markets was entirely based on smallholders (Akiyama and Nishio 1996). Also, the production of coconut oil in the Philippines for which this country was able to maintain its high world market share, was extracted predominantly from copra made by smallholders, although some coconut plantations continued to operate, especially in Mindanao.

The advantage of the plantation system is the better coordination between large-scale marketing/processing and farm-level production. Yet, the disadvantage of the peasant system

¹² In addition to this disadvantage, the plantation sector in post-independence Indonesia that expropriated the estates of Dutch planters seems to have suffered from inefficiency common to state enterprises. Several attempts to cure this problem include the "nuclear estate" scheme by which a state plantation acts as a marketing/processing center with a demonstration farm for technical extension, along which smallholders are organized in a manner similar to contract farming. These attempts have often been marred by the direct application of plantations' technology and practice without due understanding of smallholders' conditions (Barlow and Tomich 1991). The case of Indonesia represents a contrast to the relatively high efficiency of plantations in Malaysia under private entrepreneurship. Private plantations in Malaysia are also well supported by the co-operative research and extension system that has been organized since the colonial period.

in this aspect could be overcome by organizing “contract farming.” In contract farming, agribusiness firm manages processing and marketing but contracts for the supply of farm products with peasant farmers. The firm provides technical guidance, credit, and other services to peasants in return for their pledged production to the firm. In this way the system can take advantage of peasants in farm production without sacrificing scale economies in processing and marketing. Advantage of this system is to tap not only the muscle labor but also the management ability of rural people in developing economies. It was with this system that Thailand, which began canned pineapple production relatively recently, has surpassed the Philippines, formerly the world leading exporter, whose production is based on large plantations in Mindanao¹³

5.2 Dilemma of land reform

We now turn to the question of how landlessness in the Philippines and land reform programs aimed to solve this problem might have been related with relatively poor performance of agriculture in this economy.

Attempts to mitigate social unrest rooted in pervasive landlordism in the Philippines by means of redistributive land reform extended back to the American colonial regime, but the framework of the reform applied in the past four decades was established by the Agrarian Land Reform Code of 1963 enacted under President Macapagal (Hayami, Quisumbing and Adriano 1990, ch. 3).

The major thrust of the Code was the creation of owner-cultivatorship in rice and corn land. This involves two steps: first, “Operation Leasehold,” which converts share tenancy to

¹³ However, it needs a high degree of entrepreneurship and managerial skill to organize and operate the efficient contract farming system, because it is not easy to enforce contracts with a large number of smallholders concerning the quantity, quality and time of their product delivery to processing plants and/or marketing centers. Insufficient ability and effort of agribusiness firms in this regard have often resulted in the failure in the operation of contract farming. Thus, the performance of contract farming has so far been mixed even in Thailand (Siamwalla 1992). The same applies to other areas including Africa where it is reported that contract farming organized by government agencies is usually inefficient (Jaffe and Morton 1995, pp.94-107).

leasehold tenancy with rent fixed at the rate of 25 percent of average harvest for three normal years preceding the Operation: second, "Operation Land Transfer," which transfers land ownership to tenants. In the latter operation, the government expropriates land in excess of landlords' retention limit (75 hectares) with compensating landlords with 10 percent of the land value in cash and with the rest in interest-free redeemable Land Bank bonds. The land is resold to the tenants for annual amortization payments within 25 years. The Code was amended in 1971 under President Marcos to extend land reform to the whole nation, with automatic conversion of all share tenants to leaseholders. The 1971 Code was enforced by Presidential Decree No. 2 and No. 27 under the Martial Law proclaimed in 1972. The landlord's retention limit was reduced successively from 75 to 7 hectares. The period of amortization payments was shortened to 15 years. It is easy to enumerate the shortcomings of the land reform programs in the Philippines. Yet, there is no denying that large haciendas in Central Luzon were broken down and that most tenants established their status as leaseholders or amortizing owners, though sizable areas remain under landlords' direct administration.

It is clear that the beneficiaries of land reform has captured a large economic surplus because rice yields increased significantly due to irrigation development and application of new varieties and fertilizers, while rent and amortization payments have been fixed. Thus, the land reform has been successful in transferring much of the economic return to land from absentee landlords to ex-sharecroppers. On the other hand, it has created serious income inequality within village communities because no gain has accrued to landless laborers whose income has not risen or even declined because the strong population pressure on land prevented their wages from rising despite agricultural productivity increases.

The regulatory nature of reform programs that were applied in a discriminatory manner to a certain sector of agriculture resulted in major distortions in resource allocations. Limiting program application so far mainly to tenanted land created a strong incentive for landlords to evict their tenants and cultivate their land directly. However, labor inputs and, hence, agricultural output and labor income per hectare are usually higher in small family farms than in large farms based on hired labor because of the inherent difficulty of supervising wage laborers in farm operations. Therefore, the exemption of land under landlords' direct administration had the effect of reducing labor input per hectare below an optimum level,

thereby reducing the income of labor population.

Equally serious were the regulations on tenancy contracts (especially, the prohibition of share tenancy and the control of land rent) that reduced the incentive of large landholders to rent out their land in small parcels, resulting in a reduction in social product and labor income. This behavior applied not only to landlords but also to land reform beneficiaries. As the income of former sharecroppers, who were converted into leaseholders or amortizing owners, rose significantly, many of them retreated from arduous farm work leaving it to landless laborers. Yet, they hesitate to sub-rent their holdings to landless laborers, because their formal titles based on land reform laws shall be transferred to sub-lessees if the sub-lessees would prove to the agrarian reform office that they are actual tillers of the land. Thus, land reform beneficiaries have to continue to cultivate their holding based on hired labor, even if they are not able to work because of sickness, old age or engaging in non-farm activities. Inefficient combinations between land and labor inevitably resulted.

Negative effects of land reform on agricultural production efficiency were also significant outside the rice and corn sector. Although the cash crop sector has not been covered by reform programs (the Comprehensive Agrarian Reform Law of 1988 intended to cover the cash crop sector but not practically implemented), the fear has prevailed among plantation owners about eventual expropriation of their land. It is only natural that they have stopped investing to improve their land infrastructure including planting/replanting of trees. Some landowners has even preferred to keep their land idle rather than using them for agricultural production. This was often the case in frontier regions like Mindanao, which might underlie, to a significant extent, the low rate of expansion in cropland area in the Philippines as compared to Thailand (Table 1). The poor performance of the Philippines in competition for world export market (Table 4), was clearly rooted in this great future uncertainty to the planters of tropical cash crops concerning the future course of land reform.

6. Conclusion

In this paper, I have tried to develop a broad perspective on the process by which different agrarian structures developed in Indonesia, the Philippines and Thailand along different

historical paths under different ecological conditions. Development of the three economies from the late nineteenth to the early twentieth century followed a typical pattern along the “vent-for-surplus theory”, which was based on the exploitation of unused natural resources corresponding to their integration into the world market. The resource basis of vent-for-surplus development in Thailand representing the continental part of Southeast Asia was the major delta of Chao Phraya River, and that of Indonesia and the Philippines in the insular part was tropical rain forest. This difference in the resource base underlay the major difference in farm-size distribution – the unimodal distribution of peasants or family farms in Thailand as compared with the coexistence of peasants and large estate farms or plantations specializing in tropical export crops in Indonesia and the Philippines.

Further, different land policies, especially with respect to preemption of unused land by the elite, under different political regimes resulted in major differences in the pattern of land ownership. The preemption was wholesale in the Philippines under Spanish colonialism, providing a basis of the highly skewed land distribution characterized by the bifurcation between non-cultivating landlords and sharecroppers in lowland rice areas and between plantation owners and wage laborers in upland areas. In Indonesia, the preemption took place as the Dutch colonial government granted long-term lease of uncultivated public land for foreign planters. However, the government tried to prevent alienation of cultivated land from native peasants in order to avoid social instability. As a result the peasant sector continued to consist mainly of landlord-cum-owner and owner-cum-tenant cultivators, while both non-cultivating landlords and the pure landless remained a minority. In Thailand also, the preemption occurred through the grant of concessions for private canal building. However, the incidence of tenancy did not become serious, because the government of the independent kingdom preserved the traditional institution of giving land to anyone who could open and cultivate it. The rural sector of Thailand continued to be dominated by relatively homogeneous land-owning peasants.

It appears that such major differences in the agrarian structure are a significant factor underlying differences in the agricultural growth performance across the three economies in recent years. As frontiers for opening new land for cultivation were progressively closed, the initial advantage of the plantation system in large-scale land development including

infrastructure began to be out-weighed by its disadvantage in monitoring hired labor, and the advantage of the peasant system based on family labor needing no supervision to rise. This tendency seems to be manifested in the growing shares of Thailand in the world exports of tropical cash crops in recent years, in which Indonesia and the Philippines used to have traditional comparative advantage. Furthermore, the programs of land reform in the Philippines that were called for reducing inequality in the distribution of land ownership have made land markets inactive, resulting in major distortions in resource allocations and serious under-investment in agriculture.

Of course, there are many factors other than agrarian structure, which would have contributed to the differential performances of agriculture. For example, one factor commonly cited to explain the poor growth performance of Philippine agriculture is the prolonged continuation of industrial protection policy geared for import substitution. Under this policy regime the agricultural sector was penalized by high tariffs on manufactured commodities and overvalued exchange rates (Ariff and Hill 1985; Bautista 1987). Other obvious factors include state trade monopoly on sugar and coconut products heavily tinted with cronyism in the late stage of the Marcos regime (Hayami, Quisumbing, Adriano 1990, pp.115-6), and the political instability in the 1980s from the downfall of the Marcos administration throughout the succeeding Aquino regime that discouraged both domestic and foreign investments.

However, these factors may not be independent of the agrarian structure. For example, Hara (1994, pp.370-72) advanced a hypothesis on the reason why the import-substitution-industrialization was pursued more strongly for a longer period in the Philippines than the other ASEAN economies. He argued that in the Philippines the business elite who benefited from industrial protection originated from the landed oligarch and, therefore, little countervailing power was mobilized against industrial protection policy. In contrast, the rural countervailing power was comparatively high in Indonesia, Malaysia and Thailand, because the urban business elite were predominantly ethnic Chinese.

Similarly, current policy choice may be significantly conditioned by the historical path in the formation of agrarian structure. For example, remarkable success in the Green Revolution in Indonesia underlying the highest growth of land productivity among the three economies

under study for the past three decades was, to a large extent, based on the Suharto administration's strong supports on the rice sector through investment in irrigation, agricultural research, and extension plus subsidies on inputs and credits. These supports were effective in overcoming the "Dutch disease effects" that seriously damaged agriculture in some oil-producing countries such as Nigeria in the 1970s to the early 1980s (Hayami 1997, pp.101-02). It does not appear that Suharto's policy choice was independent of the tradition in Indonesia since long before its independence to protect peasants as the stabilizing block of society.

As it stands now, such political-economy theorizing is no more than mere conjecture. Yet, the agrarian structure of a nation that has been created along a unique historical path under a unique ecological condition should have a far-reaching influence on the value system in its society and the organization of its political economy and, hence, on policy choice. The positive analysis into the relationship between the historically-determined agrarian structures and the current courses of political economy remains to be the major challenge in future research.

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Table 1. Land endowments for agricultural production in Indonesia, Philippines, and Thailand, 1965-96.

	Indonesia			Philippines			1965
	1965	1996	1996/65 ratio	1965	1996	1996/65 ratio	
No. of farm workers (1000) ^a	29006	47713	1.64	7363	12128	1.65	12450
Cropland ^b :							
Total (000ha)	26000	30987	1.19	6660	9520	1.42	12600
Per capita (ha)	0.24	0.15	0.63	0.21	0.14	0.67	0.4
Per farm worker (ha)	0.90	0.65	0.72	0.90	0.78	0.87	1.0
Percentage of cropland (%):							
Lowland paddyfield ^c	n.a.	27	n.a.	n.a.	32	n.a.	n.a
Upland annual crop land ^d	n.a.	31	n.a.	n.a.	22	n.a.	n.a
Land under permanent crop	31	42	1.35	38	46	1.21	1

^a Economically active population

^b Arable land area plus area under permanent crop

^c Lowland paddyfield areas pertain to 1995 in Indonesia, 1991 in the Philippines and 1993 in Thailand.

^d Arable land area minus lowland paddyfield area

Source: FAOSTAT data base except for lowland paddyfield areas which are taken from *Indonesian Statistical Yearbook 1996* for Indonesia (8,484,000 ha in 1995), *Philippine Statistical Yearbook 1998* for the Philippines (3,001,000 ha in 1991) and *Agricultural Statistics 1995/96* for Thailand (10,934,000 ha in 1993).

Table 2: The distribution of operational farm size and the incidence of agricultural tenancy in Indonesia, Philippines and Thailand.

	Indonesia	Philippines	Thailand
Year of survey	1973	1971	1978
Average operational farm size (ha)	1.1	3.6	3.7
Percentage of farms and farmland			
Below 5 ha:			
Farms	98	85	72
Land area	69	48	39
Above 5 ha:			
Farms	0 ^a	0.2	0 ^a
Land area	14	14	0.9
Gini coefficient of land concentration	0.56	0.51	0.45
Percentage of tenanted area in total farmland			
Pure tenancy	2	21	6
Total ^b	24	33	16
Percentage of share tenancy in tenanted land	60	79	29

a. Less than 0.05 percent

b. Area in pure tenancy farms plus area in owner-cum-tenant farms.

Source: Hayami and Otsuka (1993, pp. 10-11) based mainly on UN-FAO, *1970 World Census of Agriculture: Analysis and Comparison of the Results*, Rome, 1971.

Table 3. Growth of agricultural production om Indonesia, Philippines, and Thailand, 1961-95.

	Index			Growth rate (%/year)		
	1961-65	1976-80	1991-95	1961-65 to 1976-80	1976-80 to 1991-95	1961-65 to 1991-95
Indonesia						
Total	100	157	309	3.0	4.5	3.8
Per capita	100	111	165	0.7	2.6	1.7
Per farm worker	100	138	232	2.1	3.5	2.8
Per ha ^a	100	157	263	3.0	3.4	3.2
Philippines						
Total	100	177	239	3.8	2.0	2.9
Per capita	100	116	111	1.0	-0.3	0.3
Per farm worker	100	134	156	2.0	1.0	1.5
Per ha ^a	100	137	165	2.1	1.2	1.7
Thailand						
Total	100	190	277	4.3	2.5	3.4
Per capita	100	123	140	1.4	0.9	1.1
Per farm worker	100	145	199	2.5	2.1	2.3
Per ha ^a	100	129	163	1.7	1.6	1.6

^a per hectare of cropland (arable land plus land under permanent crop)

Source: FAOSTAT database

Table 4: Shares of net exports in world total export value of selected agricultural commodities in Indonesia, Philippines, and Thailand, 1961-1995.

	Share in world market		
	1961-65	1976-80	1991-95
Rice			
Indonesia	-11.0	-17.6	-3.5
Philippines	-3.1	0.5	-0.3
Thailand	19.4	18.7	26.1
Maize			
Indonesia	-0.1	-0.1	-0.8
Philippines	0	-0.2	-0.1
Thailand	3.6	2.9	0.3
Sugar ^a			
Indonesia	0.3	-1.4	-1.1
Philippines	7.3	4.0	0.6
Thailand	0.2	2.7	6.9
Coffee ^b			
Indonesia	1.0	4.5	4.9
Philippines	0	0.3	0
Thailand	-0.1	0	0.8
Coconut Oil			
Indonesia	0	-1.0	15.8
Philippines	39.8	69.4	60.4
Thailand	-0.1	-0.2	0
Palm Oil			
Indonesia	17.8	14.5	13.9
Philippines	-0.9	-0.1	-0.1
Thailand	0	-0.6	0
Rubber			
Indonesia	23.3	23.7	27.9
Philippines	-0.3	0.1	0.3
Thailand	8.8	12.9	32.6
Pineapple ^c			
Indonesia	0	0	7.8
Philippines	12.9	20.7	15.0
Thailand	0	16.9	45.9
Banana			
Indonesia	0	0	0.1
Philippines	0	8.0	5.4
Thailand	0.1	0.1	0

^a Sugar raw equivalent

^b Coffee green and roast

^c Canned pineapple

Source: FAOSTAT database.

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